UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

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March 20, 2005

Docket No. 04007102 License No. SMB-743

David R. Smith
Environmental Manager
Shieldalloy Metallurgical Corporation
Aluminum Products & Powders Division
12 West Boulevard
Newfield, NJ 08344-0768

SUBJECT: INSPECTION 04007102/2003001, SHIELDALLOY METALLURGICAL CORPORATION, NEWFIELD, NEW JERSEY SITE

Dear Mr. Smith:

On March 17, 2005, we completed our inspection activities that were conducted periodically over the last two years by Marie Miller of this office at the Shieldalloy, Newfield facility of activities authorized by the above listed NRC license. The inspection included interviews with personnel, observations by the inspector of your decommissioning activities, and independent measurements of equipment and building materials from two buildings (D111 and D102/112). In addition, the inspector observed onsite groundwater monitoring sample collection and received five groundwater samples for independent determination of gross alpha and gross beta concentrations. The groundwater samples were analyzed by the Environmental Survey and Site Assessment Program of the Oak Ridge institute for Science and Education (ORISE). The findings of the inspection were discussed with you and Mr. Stephen Danilak of your organization at the conclusion of the inspection. Enclosure 1 presents the results of this inspection. For your information and files, the ORISE report containing the results of the groundwater analyses is also enclosed with this letter (Enclpsure 2).

Within the scope of this inspection, no violations were identified. In addition, all gross alpha and gross beta results from the five groundwater monitoring well samples were less than the EPA screening limits for groundwater.

Your cooperation with us is appreciated.

Sincerely,

Original signed by James Kottan

Ronald R. Bellamy, Chief
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure:
1. Inspection Report No. 04007102/2003001
2. ORISE Analytical Results dated April 28, 2004

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D. Smith
Shieldalloy Metallurgical Corporation

cc:
State of New Jersey
Mayor of Newfield, NJ

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No.	04007102/2003001
Docket No.	04007102
License No.	SMB-743
Licensee:	Shieldalloy *M*etallurgical Corporation
Location:	West Boulevard P.O. Box 768 Newfield, New Jersey 08344
Inspection Dates:	February 13, June 24, and October 21, 2003, April 7, 2004 and March 17, 2005

Inspector: ***Original signed by Marie Miller*** ***March 20, 2005***

Marie Miller — Date
Senior Health Physicist

Approved By: ***Original signed by James Kottan*** ***March 21, 2005***

Ronald R. Bellamy, Chief — Date
Decommissioning Branch
Division of Nuclear Materials Safety

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EXECUTIVE SUMMARY

Shieldalloy Metallurgical Corporation
NRC Inspection Report No. 04007102/2003001

An announced safety inspection was conducted at the Shieldalloy Metallurgical Corporation (Shieldalloy) facility in Newfield, New Jersey on February 13, June 24, October 21, 2003, April 7, 2004 and on March 17, 2005. The inspection included a review of the licensee's decontamination and dismantlement activities of selected buildings since the licensee's principle licensed activities ceased in June 1998. This review included interviews with licensee management personnel, tours of the facilities, observations of the radiation survey program and postings and labeling. In addition, on April 7, the inspector observed ground water sampling, and five water samples were also received by the NRC for independent confirmatory analysis. The samples were analyzed by the Environmental Survey and Site Assessment Program of the Oak Ridge Institute for Science and Education (ORISE).

The licensee's organization provided adequate oversight of its contractor's dismantlement and decommissioning activities to ensure materials released from the site meet the applicable guidance and regulations. With the exception of the former laboratory, no buildings remain from the former principle licensed activities. The licensee is using a phased approach to develop the necessary information for its site-wide decommissioning plan.

The licensee conducted dismantlement activities in accordance with its applicable radiation safety site procedures and licensee approved contractor work plans. Also, the gross alpha and gross beta results from the five groundwater monitoring well samples were less than the Environmental Protection Agency (EPA) screening limits for groundwater.

The Source Material Storage Yard was conspicuously posted as required by 10 CFR 20.1902. There were no changes in the dose rates from the stored licensed radioactive material.

REPORT DETAILS

L Organization and Scope of the Program

a. Inspection Soope

The inspection included a review of organizational changes and scope of licensed activities conducted since the last inspection. Interviews were conducted with the President, Vice President, and Environmental Manager.

b. Observations and Findinos

The President for Shieldalloy assumed the duties of Chair of the Radiation Safety Committee, with the deparhire of the previous site Vice President In the fall of 2002. This change was approved by license amendment No. 9 in November 2002. In 2004, about half of the company employees, including the President, moved to che new corporate office in Swedesboro, with the production and shipping staff remaining at the plant in Newfield. The Environmental Manager, who is also the Radiation Safety Officer (RSO), continues to be located at the licensed location. The RSO duties included management oversight of the ongoing decommissioning activities and review of survey data packages.

The license, which authorizes decommissioning only, is in timely renewal. Site decontamination procedures and licensee approved contractor work plans and procedures were used to dismantle and decbntaminate certain site buildings, such that residual radioactive contamination levels permit the materials with surface contamination to be released for unrestricted use. To address the materials that are or have the potential to be volumetrically contaminated, such as soil, slag, gravel, and asphalt, the licensee is developing a revised Decommissioning Plan (DP). The licensee plans to submit a DP in 2005 to address long term control of the site and final status survey plans for remediated areas. Given the scope of this project, the licensee is using a phased approach to develop the information prior to resubmitting a DP.

c. Conclusions

The licensee's organization provided adequate oversight of its contractor's dismantlement and decommissibnihg activities to ensure materials released from the site meet the applicable guidance and regulations. With the exception of the former laboratory, no buildings remain from the former principle licensed activities. The licensee was using a phased approach to develop the necessary infonnation for its site-wide DP.

!t. Radiological Measurements

a. Inspection Scope

The licensee's radiation survey prpcedures for the release of surface contaminated materials and the results of selected surveys were reviewed. Independent measurements were taken of selected building materials using a hand-hekl zinc sulfide detector for alpha particles, and a Ludlum Model 19 mircoR meter for gamma radiation. The licensee's previous characterization data from groundwater monitoring was also reviewed. Five ground water samples were analyzed by ORISE for gross alpha and gross beta concentrations.

b. Obsen/ations and Findings

Dismantlement activities and site radiation survey activities were conducted by contractors. The licensee had demolished Buildings D111; D102/112 and the Flex-Kleen Baghouse, which were used for licensed activities. The inspector confirmed by periodic observations during the inspection period that the licensee implemented its work plan and applicable radiation safety site procedures during these dismantlement activities. No safety concerns were identified.

The inspector obsen/ed the methods used to conduct release sun/eys of equipment and building materials. The licensee used criteria that was more conservative than the criteria specified in Policy and Guidance Directive FC83-23. Licensee Procedure RSP-009, "Contamination Control," established a 600 disintegrations-alpha per minute per 100 square centimeters for combined removable and fixed contamination. The inspector observed that equipment and building materials were power or steam washed, and air dried prior to sun/ey. The inspector obsen/ed proper technique by the licensee's contractor for source checking and efficiency determination. Alpha sun/eys, using a gas-filled proportional detector held within 1/8 inch off the surface, were appropriately conducted. Ambient gamma radiation readings were also measured. Independent measurements by the inspector agreed with the licensee sun/eys. In addition, the inspector took gamma measurements of selected outgoing non-radiological waste shipments and determined that dose rates were consistent with background. The inspector noted adequate records for surveys were maintained and submitted to the RSO for review and records management.

Materials that had the potential to be volumetrically contaminated were segregated based on area of usage. Soils and soil-like dust were evaluated using the screening criteria published in the Federal Register on December 7, 1999 (64 FR 68395) to demonstrate that the soil can remain on-site as unrestricted. The inspector confirmed that the licensee was not using this screening criteria as a release criteria for offsite disposal or recycle. Excavated soils above the screening criteria were removed to the Source Material Storage Yard (SMSY). The licensee had submitted a Final Status Sun/ey Plan for the land areas within the footprint of these former buildings on

June 24, 2003. However, because the licensee's DP is under development, release criteria to demonstrate compliance with 10 CFR 20.1402 has not yet been approved.

The inspector noted from a review pf previous groundwater data that gross alpha and gross beta results did not differ significantly from background concentrations, except for wells in the immediate vicinity of the SMSY. Therefore, five onsite wells in or surrounding the SMSY were selected to detennine if there had been a detectable migration of licensed material in the ground water. These well locations correspond to SC 25S, SC14S, SC11S(R), SC13S and W2R. The inspector observed the licensee's contractor collect selected groundwater samples. Sample volumes were approximately one liter and accompanied by a chain-of-custody form. Filtered and unfiltered samples were analyzed for gross alpha and gross beta activity. Enclosure 2 provides the ORISE report received by NRC oh May 3, 2004. All results were below the EPA screening values (5 and 50 picocuries/liter for gross alpha and gross beta, respectively) established by the USEPA for acceptable concentrations for community drinking water systems. The Inspector also noted that there was a decrease in the gross alpha and gross beta concentrations based ori comparison to past characterization and monitoring results.

c. Conclusions

The licensee conducted dismantlement activities in accordance with its applicable radiation safety site procedures and licensee approved contractor work plans. The gross alpha and gross beta results from the five groundwater monitoring well samples were less than the EPA screening limits for groundwater.

IIL Posting and Labeling

a. Inspection Scope

The inspector reviewed the adequacy of the licensee's posting and labeling controls for current radiological conditions. The inspection included tours of the facility, review of the 2003 and available 2004 perimeter TLD results and independent measurements.

b. Observations and Findings

The inspector observed that the SMSY is the only remaining area that requires posting in accordance with 10 CFR 20.1902. This area included the slags that contain greater than 0.05 % of source material and the baghouse dust that was generated during the metallurgical processing of the pyrochlore ore and other feed material for ferrocolumbium. The SMSY also contained waste generated during previous remediation activities, including excavation of the haul road, and volumetrically contaminated materials from the building dismantlement activities.

The inspector made independent direct gamma radiation measurements along the perimeter fence line. These measurement results were consistent with the licensee's quarteriy TLD results and past assessments of compliance to the public exposure limits. No safety concems were identified.

c. Conclusions

The Source Material Storage Yard (SMSY) was conspicuously posted as required by 10 CFR 20.1902. There were no changes in the dose rates from the stored licensed radioactive material.

IV. Exit Meeting

The inspector provided a summary of the inspection findings to the Radiation Safety Officer on April 7, 2004 and to the Technical Manager on March 17, 2005.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Eric Jackson, President, Shieldalloy Metallurgical Corporation
Joseph Diegel, Vice President, Shieldalloy, Newfield
-*Stephen Danilak, Technical Manager
*David Smith, Radiation Safety Officer and Environmental Manager
Carol Berger, Licensee Consultant
Ravi Jarecha, Project Consultant
Harch Gill, Ph.D., Remedial Planning Consultant
Edward Christman, Ph.D., C.H.P., Health Physics Planning Consultant
Dan Rukakoski, Project Scientist for Groundwater (Consultant)
Jeffrey Saunders, Associate Geologist (Consultant)

Other NRC Personnel

**Kenneth Kalman, Project Manager, NMSS
**Melanie Wong, NMSS

* indicates presence at exit meeting
** indicates presence during October 21, 2003 site tour

ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

April 28, 2004

Ms. Marie Miller
U.S. Nuclear Regulatory Conunission
Region I
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: ANALYTICAL RESULTS FOR WATER SAMPLES FROM SHIELDALLOY METALLURGICAL CORPORATION, NEWFIELD, NEW JERSEY [TAG NUMBER U01S48] (RFTA 04-001)

Dear Ms. Miller:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Educadon (ORISE) received five water samples on April 8, 2004 that were collected at Shieldalloy Metallurgical Corporation on April 6, 2004. The samples were analyzed for gross alpha and gross beta, bodi the suspended and dissolved fractions (Procedure API, Revision 14; CP3, Revision 2). The samples were filtered and then acidified npon receipt. Tiie acidified pordon was stiired for a minimum of 48 hours before the analysis was inidated. The gross alpha and gmss beta concentrations are presented in Table 1.

ESSAP's Quality Control (QC) requirements were met for this analysis. The QC files are available for your review upon request.

Please contact me at (865) 241-3242 or Wade Ivey at (865) 576-9184 should you have any questions.

Sincerely,

Dale Condra

Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:ar

Enclosure

cc: T. McLaughlin, NRC/NMSS/TWFN 7F27
E. Knox-Davin, NRC/NMSS/TWFN 8A23
File/843
E. Abelquist, ORISE/ESSAP
T. Vitkus, ORISE/ESSAP

Distribution approval and concurrence:	Initials	Date
Technical Managemem Team Member	WV	4/27/2004
Quality Manager	QTP	4/27/2004

ORISE TABLE 1

CONCENTRATIONS OF GROSS ALPHA AND GROSS BETA IN WATER SAMPLES BY LOW BACKGROUND ALPHA AND BETA COUNTING API, REVISION 14; CP3, REVISION 2 SHIELDALLOY METALLURGICAL CORPORATION NEWFIELD, NEW JERSEY

ESSAP Sample ID	NRC REGION I Sample ID	Concentrations (pCi/L)	
		Gross Alpha[a]	Gross Beta[b]
843W001D[c]	SC25S	-0.13 ± 0.70[d]	1.34 ± 0.99
843W001S[e]	SC25S	2.8 ± 1.4	9.1 ± 2.5
843W002D	SC14S	0.75 ± 0.62	2.47 ± 0.99
843W002S	SC14S	1.9 ± 1.3	3.4 ± 2.2
843W003D	SC11S(R)	0.03 ± 0.52	3.2 ± 1.0
843W003S	SC11S(R)	0.1 ± 1.0	0.3 ± 2.0
843W004D	SC13S	3.0 ± 1.5	28.7 ± 3.0
843W004S	SC13S	0.6 ± 1.1	3.4 ± 2.2
843W005D	W2R	2.03 ± 0.70	6.7 ± 1.2
843W005S	W2R	1.8 ± 1.3	6.1 ± 2.4

[a]The average MDC for gross alpha for a 200 minute count u ring 0.1 L to 0.25 L samples is 1.6 pCi/L.
[b]The average MDC for grott beta for a 200 minute count using 0.1 L to 0.25 L samples is 2.5 pCi/L.
[c]D represents the dissolved fraction of the sample.
[d]Uncertainties represent the 95% confidence level, based on total propagatad uncertainties.
[e]S represents the suspended fraction of the sample.